VR-3510
VR-3525
VR-3550

DIGITAL MULTIMETER

INSTRUCTION MANUAL

HITACHI

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1. Introduction

This instrument is a highly portable digital multimeter designed for use in applications ranging from hobbyist to professional use. Its major features are described below.

- **Functions**

  In addition to the basic functions of AC and DC voltage measurement, AC and DC current measurement and resistance measurement, this instrument has such functions as diode testing, continuity checking and temperature measurement, making it extremely versatile.

  It is capable of measuring currents to 10A.

  (Temperature measurement is available on the VR-3510 and 3525 only.)

- **Easy Operation**

  Your new instrumet has been human-engineered with emphasis on ease of use, and makes use of front-panel touch buttons. To enhance ease of use even further, an auto-ranging function has been provided (not operative for current measurements), in addition to the manual range selection function.

- **Power Supply**

  Use of LSI devices and an LCD (liquid crystal display) have realized a drastic reduction in power consumption, enabling this instrument to operate continuously for 500 hours approx.(voltage and current measurements) on two type AA batteries.

- **Data Hold Function**

  The data hold function is ideal for measuring fluctuating values. By setting the data hold function to on,

the measured value is held on the display. This is extremely effective when making measurements without a helper to read and record measured values for you.

- **Transient Protection**
  Transient protection has been provided which protects this instrument from instantaneous excessive voltages up to 6kV. This effectively protects the multimeter from damage due to surrounding electrostatic charges.

- **Display**
  A large, easy-to-read LCD display is used in this instrument, making reading easy, even out of doors. Convenient display annunciators indicate the currently selected function and range, thus eliminating measurement errors.

- **Safety Test Leads**
  Safety jacks and safety test leads are provided

2. Configuration

The configuration of the Hitachi VR-3510, VR-3525 and VR-3550 digital multimeters is as follows.

(1) Multimeter ·····1
(2) Batteries (type AA) ·····2
(3) Test leads ·····1set
(4) Spare fuse (200mA/250V) ···1
(Contained in the battery housing)
(5) Instruction manual ·····1

3. Specifications

3-1 General Specifications

Withstanding voltage (COM to ground)	±500VDC or ACrms
Sampling rate	Approx. 2 times/sec.
Display	3-1/2 digit LCD panel display
Displayed information	Units display: mV, V, μA, mA, Ω, kΩ, MΩ Battery display: B AC measurement annunciator: AC Continuity check annunciator: •)) Diode test measurement display: ⊣◀ Overload display: Leftmost "1"only is displayed Polarity display: For negative values only
Operating method	Dual-slope integration
Battery life	Normally 500 hours with manganese dry cells (for voltage and current measurements.) The low battery indication, B, appears on the display when about 20% of the battery life remains.
Power supply	Type AA batteries (2)
Dimensions	86(W)×32(H)×174(D)mm(3.4×1.3×6.9in)
Weight	Approx. 270g(9.5oz)(not including batteries)
Operating temperature	0 to +40℃ (+32 to +112°F)
Temperature range for guaranteed accuracy of all specifications	+18 to +28℃(+65 to +82°F)
Humidity	80% RH or less (0 to 35℃) 70% RH or less (0 to 40℃)

3-2 Electrical Specifications

The performance listed below applies to instruments calibrated on a half year cycle and operated in the temperature range of 18 to 28℃ (65 to 82°F) with a humidity of 80% or less.

(1) DC voltage

Model	VR-3510	VR-3525	VR-3550
Range switching	Auto-ranging and manual selection		
Resolution			
200mV range	0.1mV		
2000mV range	1mV		
20V range	10mV		
200V range	100mV		
1000V range	1V		
Accuracy ±(% of reading +NO. of digits)			
200mV range	0.1%+2	0.25%+2	0.5%+2
2000mV range	0.1%+1	0.25%+1	0.5%+1
20V range	0.1%+1	0.25%+1	0.5%+1
200V range	0.1%+1	0.25%+1	0.5%+1
1000V range	0.1%+1	0.25%+1	0.5%+1
Auto-ranging	Accuracy listed above is for the range used.		
Input impedance	1000MΩ or higher for the 200mV range, 11MΩ for the 2000mV range, and 10MΩ for all other ranges.		
Normal mode rejection	Better than 55dB at 50/60 Hz		
Response time	1s or less (except for auto-ranging)		
Excessive voltage protection	1100VDC or 850VACrms		
Temperature coefficient± (% of reading+No. of digits)/℃	(0.02% +0.1)/℃	(0.025% +0.1)/℃	(0.03% +0.1)/℃

(2) AC Voltage

Model	VR-3510	VR-3525	VR-3550
Range switching	Auto-ranging and manual selection		
Resolution 2000mV range 20V range 200V range 750V range	 1mV 10mV 100mV 1V		
Accuracy (all ranges) ±(% of reading +No. of digits)	0.75% + 3	0.75% + 3	1% + 5
Measurement frequency response	45 to 500Hz		
Input impedance	11MΩ in the 2V range and 10MΩ in all other ranges.		
Conversion method	Average measurement (rms value is calibrated for a sinewave signal)		
Response time	2sec. or less (except for auto-ranging)		
Excessive voltage protection	1100VDC or 850VACrms		
Temperature coefficient ±(% of reading +No. of digits)/℃	(0.05% + 0.2)/℃		

(3) Resistance

Model	VR-3510	VR-3525	VR-3550
Range switching	Auto-ranging and manual selection		
Resolution			
200Ω range	100mΩ		
2000Ω range	1Ω		
20kΩ range	10Ω		
200kΩ range	100Ω		
2000kΩ range	1kΩ		
20MΩ range	10kΩ		
Accuracy ±(% of reading +No. of digits)			
200Ω range	0.2% + 3	0.25% + 3	0.5% + 3
2000Ω range	0.2% + 1	0.25% + 1	0.5% + 1
20kΩ range	0.2% + 1	0.25% + 1	0.5% + 1
200kΩ range	0.2% + 1	0.25% + 1	0.5% + 1
2000kΩ range	1% + 1	1% + 1	1% + 1
20MΩ range	2% + 3	2% + 3	2% + 3
Auto-ranging	Accuracy that listed above is for the range used.		
Response time	1sec. or less in the range less than 200kΩ, 3sec. or less in the 2000kΩ range, and 8sec. or less in the 20MΩ range. (Response time depends upon the resistance value for auto-ranging).		
Maximum circuit voltage	1.5V ± 0.25V in the 200Ω range, and 0.65V ± 0.1V for the 2000Ω and higher ranges		
Maximum voltage within a range	0.15V or less in the 200Ω range, 0.37V or less for the 2000Ω or higher ranges		
Maximum test current			
200Ω range	0.7mA or less		
2000Ω range	0.1mA or less		
20kΩ range	30μA or less		
200kΩ range	4μA or less		
2000kΩ range	0.4μA or less		
20MΩ range	0.04μA or less		
Overload protection	0.2A/250V fuse protection		
Temperature coefficient ±(% of reading + No. of digits)/℃			
200Ω to 200kΩ range	(0.025%+0.2)/℃	(0.025%+0.2)/℃	(0.03% +0.2)/℃
2000kΩ range	(0.05%+0.2)/℃	(0.05% +0.2)/℃	(0.05% +0.2)/℃
20MΩ range	(0.1% + 0.2)/℃	(0.1% + 0.2)/℃	(0.1% + 0.2)/℃

(4) DC Current

Model	VR-3510	VR-3525	VR-3550
Range switching	Manual only		
Resolution			
200μA range	0.1μA		
2000μA range	1μA		
20mA range	10μA		
200mA range	100μA		
10A range	10mA		
Accuracy ±(% of reading + No. of digits)			
200μA range	0.75% + 1	0.75% + 1	1% + 1
2000μA range	0.75% + 1	0.75% + 1	1% + 1
20mA range	0.75% + 1	0.75% + 1	1% + 1
200mA range	0.75% + 1	0.75% + 1	1% + 1
10A range	2% + 1	2% + 1	2% + 1
Response time	1sec. or less		
Effect of internal voltage drop			
200μA range	250mV(max.)		
2000μA range	250mV(max.)		
20mA range	250mV(max.)		
200mA range	750mV(max.)		
10A range	200mV(max.)		
Excessive current protection (A input)	0.2A/250V Fuse protection		
Excessive current protection (10A input)	Up to 10A		
Temperature coefficient ±(% of reading + No. of digits)/℃	(0.05% + 0.1)/℃		

(5) AC Current

Model	VR-3510	VR-3525	VR-3550
Range switching	Manual only		
Resolution			
200μA range	0.1μA		
2000μA range	1μA		
20mA range	10μA		
200mA range	100μA		
10A range	10mA		
Accuracy ±(% of reading + No. of digits)			
200μA range	1.2% + 3	1.2% + 3	1.5% + 5
2000μA range	1.2% + 3	1.2% + 3	1.5% + 5
20mA range	1.2% + 3	1.2% + 3	1.5% + 5
200mA range	1.2% + 3	1.2% + 3	1.5% + 5
10A range	3% + 3	3% + 3	3% + 5
Frequency response	45 to 500Hz		
Conversion method	Average measurement (rms value is calibrated for a sinewave signal)		
Response time	2sec. or less		
Effect of internal voltage drop			
200μA range	250mV (max.)		
2000μA range	250mV (max.)		
20mA range	250mV (max.)		
200mA range	750mV (max.)		
10A range	200mV (max.)		
Excessive current protection (A input)	0.2A/250V Fuse protection		
Excessive current protection (10A input)	Up to 10A (non-fuse protection)		
Temperature coefficient ±(% of reading +No. of digits)	(0.1% + 0.2)/℃		

(6) Continuity

Model	VR-3510	VR-3525	VR-3550
Range	The 200Ω range is automatically selected regardless of which range is chosen.		
Threshold	20Ω ± 50%		
Response time	100msec.		
Overload protection	0.2A 250V Fuse protection		

(7) Diode Test

Model	VR-3510	VR-3525	VR-3550
Range	0~1000mV		
Test current	0.6mA ± 30%		
Accuracy	±(5% of reading + 1 digit)		
Response time	1sec. or less		
Overload protection	0.2A/250V Fuse protection		

(8) Temperature (Applicable only to the VR-3510 and VR-3525)

Model	VR-3510	VR-3525
Sensor	K(CA) Thermocouple	
Measurement range	−20℃ to +700℃ (using a special probe)	
Resolution	1℃	
Accuracy	±(2% of reading + 2℃)	
Overvoltage protection	0.2A/250V Fuse protection	
Temperature coefficient	±(0.05% of reading + 0.2℃)/℃	
probe	Model 4261: Temperature probe(−20 to +700℃ protector tube type) Model 4262: Temperature probe(−20 to +200℃ protector tube type) Model 4263: Temperature probe(−20 to +600℃ surface sensor type)	

4. Operation

To prevent accidents and errors caused by miss operation we recommend that you thoroughly read this section on operation and follow the procedures described carefully. This will ensure that you get the most out of your new instrument.

4-1 Power Supply

This instrument uses two pcs of the type AA batteries as a power supply and operates for as long as 500 hours (for voltage measurements). The low battery indication, B, appears on the display when about 20% of the battery life remains. When the "B" mark appears, batteries should be replaced as soon as possible.

When you received your instrument, no batteries were installed in it. Follow the procedures below for load or replacement of batteries.

1. Referring to Fig. 4-1, press down on the portion of the battery cover marked OPEN in the rear of the instrument and slide the battery cover open in the direction of the arrow.
2. Load batteries into the battery compartment, observing the ⊕ and ⊖ polarities as indicated in Fig. 4-1.
3. Place the battery cover back.
4. When battery replacement necessary, replace both at the same time.

CAUTION: When replacing batteries, be sure to turn the power switch to off and remove test leads first.

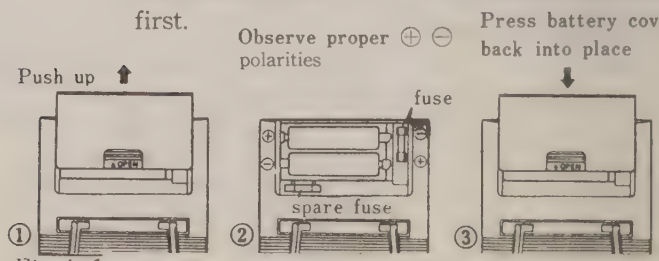


Fig. 4-1

4-2 Fuse

As a means of protecting this instrument from excessive currents, a fuse, located as shown in Fig. 4-1②, is used. When replacing this fuse, remove the battery cover in the same manner as described for battery replacement and use the test lead tip to extract the fuse.

This instrument uses a 0.2A fast-blow glass-sealed fuse. Should the fuse blow while operating the instrument, replace with a fuse of the required capacity only after checking the cause of the trouble.

A buzzer alarms a blown-up fuse when the equipment is set on the continuity test mode. The meter also alarms the blown-up fuse by displaying 000mV when it is set on the diode test function mode.

4-3 Front Panel Description

The front panel of this instrument has been designed using color coding and symbols to simplify operation. Section 4-6 describes in detail the operation of the various functions.

The following is a description of front panel controls and functions.

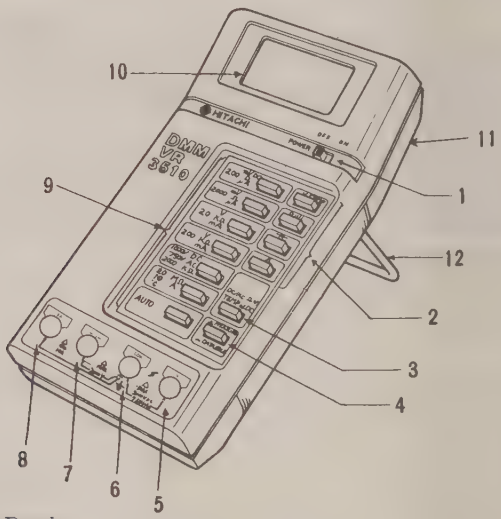
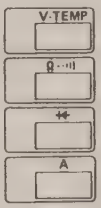
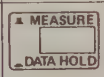


Fig. 4–2
VR-3510 Front Panel

NO.	Name		Function
1	Power switch		Sliding this switch, turns the instrument power ON and OFF.
2	Function switches		These lock-type switches can be selected individually to choose a single function, all other switches returning to the off condition. For resistance and continuity (Ω •))), the function depends upon the setting of switch 3. For voltage and temperature measurements (V-TEMP), the function depends upon the setting of the range switch 9. (Note that VR-

			3550 does not provide a temperature measurement function.)
3	DC/AC and resistance/ continuity selection switch		This switch provides DC/AC selection when the voltage measurement or current measurement function switch has been selected. When the resistance (Ω) and continuity (•))) mode has been selected, it provides selection of either resistance or continuity. (For diode testing, this switch has no effect.) CAUTION: When using the VR-3510 and VR-3525 temperature measurement function, this switch should be set to the DC position.
4	Data hold		This lock-type switch, when pressed, makes the displayed value to be held. When pressed once again, the display is updated with newly measured values. CAUTION: Note that when the power supply is first switch on, the DATA HOLD mode is enabled, and measurements are not possible. For this reason, the DATA HOLD push-button must be pressed to cancel this mode.
5	V Input		This input is used for voltage measurements and is connected to the high side of the circuit being measured via the red probe.
6	COM Input		This is the common input for all measurement modes and is connected to the low side of the circuit under measurement via the black probe.
7	A-Ω-⊣◀- -TEMP Input		This input is used for resistance measurements, for current measure-

			ments up to 200mA, and for continuity checking, diode testing, and temperature measurements. This is connected to the high side of the circuit under measurement via the red probe.(Note that the VR-3550 is not provided with a temperature measurement function.)
8	10A Input		This input is used with the 10A current measurement range, the red probe and is connected to the high side of the circuit under measurement via the red probe.
9	Range switches		These lock-type switches are used to select measurement range. When the switch corresponding to the desired range is pressed, all other switches are set to the off position. When the AUTO switch is pressed, auto-ranging is enabled.
10	Display		The 3-1/2 digit LCD display has a maximum display value of 1999, indicates over-ranging,and includes annunciators for mV, μmA, MkΩ, ⊣◀ and continuity beeper modes.
11	Battery cover		Removing this battery cover exposes the two type AA batteries and the protective fuse.
12	Stand		This stand is provided for easy reading of measurements.

4-4 Display

This instrument uses a 3-1 2 digital LCD display which includes annunciator symbols corresponding to the selected function (refer to Fig. 4-3).

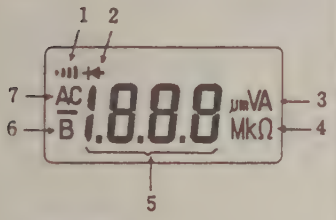


Fig. 4–3

1.	Continuity measurement display
2.	Diode test display
3.	Voltage measurement mV/V display
4.	Resistance measurement Ω/kΩ/MΩ display
5.	Measured value display
6.	Battery low (1.3V ± 0.075V or less) display
7.	AC Voltage and current measurement display

Should a single "1" display as shown in Fig. 4-4 appear at the left side of the display during measurements, this is an indication of an over-range condition. That is, the input voltage, current or resistance is greater than the selected range. If this occurs, switch to a higher range as soon as possible. Auto-ranging is an extremely convenient function, the operation of which is described in section 4-7.

Note that the over-range condition does not necessarily cause damage to the instrument. For example, this type of condition occurs when the test leads are left open during resistance measurements.

Over-range display

Fig. 4–4

4-5 Input Limits

The input limits for the various functions are listed in the table below. Care should be taken that inputs exceeding these limits are never applied to the instrument.

Function	Input Terminal	Maximum Input
* DC/AC Voltage	V Input and COM input terminals	1100VDC/850V AC rms
* DC/AC Current (Except 10A range) * Resistance * Diode test * Continuity * Temperature measurement	A-Ω-•)) ⊣◀-TEMP input and COM input terminal	0.2A/250V (fuse protected)
* 10A Range DC/AC current	10A and COM input terminals	10ADC/10A AC rms

4-6 Operating Procedures

Set the POWER switch to ON, and select the function switch corresponding to the desired measurement function and the range switch group as shown in Table 4-1. If the value being measured is unknown, start measuring in the higher ranges.

Table 4-1

	Switch symbol	Voltage DC	Voltage AC	Current DC	Current AC	Resistance	Diode test	Continuity	Temperature (VR 3510 & VR 3520)
Function	V·TEMP V(VR-3550)	●	●	–	–	–	–		●
	Ω	–	–	–	–	●	–	●	–
	⊣◀	–	–	–	–	–	●	–	–
	A	–	–	●	●	–	–	–	
	DC·AC Ω –•))			DC	AC	Ω	□	•))	DC
	MEASURE	–		–	–			–	–
	DATA HOLD								
Range	200mVDC Ω μA	○	–	○	○	○	□	□	–
	2000 mV Ω μA	○	○	○	○	○	□	□	–
	20 V kΩ mA	○	○	○	○	○	□	□	–
	200 V kΩ mA	○	○	○	○	○	□	□	–
	1000 VDC 250 VAC 2000 kΩ	○	○	–	–	○	□	□	–
	20 MΩ 10 A ℃	–		○	○	○	□	□	●
	AUTO	○	○	–	–	○	□	□	–
Test leads	10A	–	–	HI 10A range only	HI 10A range only		–	–	
	V Ω ⊣◀	–	–	HI All range except 10A	HI All range except 10A	HI	HI	HI	HI (thermocouple)
	COM	LO	LO	LO	LO	LO	LO	LO	LO (thermocouple)
	V	HI	HI	–	–	–	–	–	–

● : ON condition
○ : Ranges selectable
— : OFF condition
□ : Can be at any setting
HI : Red lead connected to the input high side
LO : Black lead connected to the input low side

(1) Voltage Measurements

Select the switches appropriate to voltage measurement using Table 4-1 as a guide, and contact the circuit under measurement using the test leads. Note that the DC/AC switch is in the DC setting when the unit is powered up. Pressing it successively alternates the AC and DC settings. In the AC setting, the characters "AC" appear in the display. After selecting the voltage function, this switch should be set. Remember that for AC measurements, the input frequency range is 45 to 500Hz.

(2) Current Measurements

Select the switches appropriate to current measurement using Table 4-1 as a guide, and contact the circuit under measurement using the test leads. To use the 10A rang, change the insertion position of the red test lead connector.

DC/AC switching is the same as for voltage measurements, and the current measurement frequency range is 45 to 500Hz.

(3) Resistance Measurements

Select the switches appropriate to resistance measurement using Table 4-1 as a guide, and contact the circuit under measurement using the test leads. When power is applied, the Ω/•)) switch is in the Ω setting. Pressing this switch successively alternates between the •)) and Ω settings.

(4) Continuity Testing

Select the switches appropriate to continuity tests using Table 4-1 as a guide, and contact the circuit under measurement using the test leads. When the Ω/•)) switch is set

to the •)) mode, a "•))" symbol appears in the display. Continuity in the circuit under test is indecated by a beeping sound. This switch should be set after the function switch has been set.

(5) Diode Testing

Perform switch selections for diode tests, using Table 4-1 as a guide. First connect the diode in the forward direction as shown in Fig. 4-5 (a). The display will indicate the diode forward voltage (V_f). In general, this value should be within the range of approximately 500 to 700mV. Should the diode be damaged or shorted, this value will be close to 0mV. If open, the terminal-to-terminal voltage will be approximately 1500mV. (This is the battery voltage, and will decrease with time.) Next, connect in the reverse direction as shown in Fig. 4-5 (b). If the diode is normal, a value of approximately 1300mV or greater will be displayed.

If the diode is damaged or shorted, the display will read approximately 0mV.

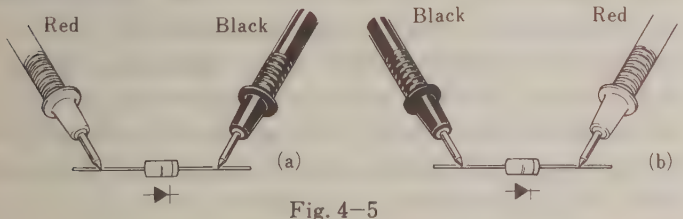


Fig. 4–5

(6) Temperature Measurements (Applicable only to the VR-3510 and VR-3525)

perform switch selections for temperature measurements, using Table 4-1 as a guide. In place of the normal test leads, connect an optional thermocouple (K type) to the instrument, and bring the thermocouple tip to the point at which the temperature is to be measured. Note that the instrument case itself should never be applied to high or low temperatures.

The buzzer starts sounding if the continuity mode is set while the temperature probe is connected. This is due to the probe tip being shorted and not because the fuse being blown in the digital multi meter.

4-7 Measurement Techniques

(1) Auto-Range Operation

This instrument has an auto-ranging function. If the auto-range function has been selected, the range is automatically set in accordance with the measured value. This frees the operator from the necessity of troublesome range selection.

When measuring an unknown value, it is best to use auto-ranging, and when measuring values that are relatively fixed, it is faster to set the instrument in the manual range selection mode. Range switching occurs at a 1999 display when switching to higher ranges and at approximately 180 when switching to lower ranges. When rapid up-ranging and down-ranging occurs, a 3-digit display may result for a normal 4-digit display. This condition can be corrected by selecting the manual range corresponding to the automatically selected range, thus restoring the 4-digit display.

(2) DATA HOLD

If the DATA HOLD switch is pressed when making measurements, the measured value is held on the display, even if the test leads are removed from the circuit under measurement. This is a convenient feature in measuring time-varying values, or when a helper is not available to read values. To make a new measurement, simply press the DATA HOLD switch once again to cancel the hold function.

CAUTION: When the unit is powered on in the DATA HOLD mode, random charactors may be displayed. In this case, press the DATA HOLD switch to clear this condition and make measurements possible. Also, if the display does not change even for varying input levels, the data hold might have been realized.

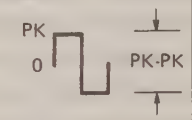
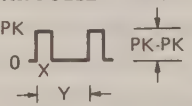
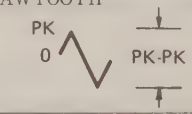
(3) Temperature Measurements (Applicable only to the VR-3510 and VR-3525)

perform switch selection for temperature measurements, using Table 4-1 as a guide and connect a thermocouple to the instrument in place of the normal test leads. Shorting the terminals will cause a display of the instrument temperature itself. This can be used as a rough indication of room temperature. Note, however, that this is the temperature of the unit itself and may vary slightly from the actual room temperature.

CAUTION: Since this instrument is not resistant to high temperatures, it should not be applied to high or low temperatures when making temperature measurements. To ensure accurate and wide-range temperature measurements, a K type thermocouple (sold separately) should be used.

(4) AC Measurements

This instrument uses an average-value rectifying method of AC measurement in which the average value is measured and the display is calibrated in rms for a sinewave input. For inputs other than a sinewave, therefore, a display error will occur. The relationship of peak-to-peak, 0-peak, rms, and average values for various types of waveforms is given in the following table.

INPUT WAVEFORM	DISPLAY MULTIPLIER FOR MEASUREMENT CONVERSION			
	PK-PK	0-PK	RMS	AVG
SINE	2.828	1.414	1.000	0.900
RECTIFIED SINE (FULL WAVE)	1.414	1.414	1.000	0.900
RECTIFIED SINE (HALF WAVE)	2.828	2.828	1.414	0.900
SQUARE 	1.800	0.900	0.900	0.900
RECTIFIED SQUARE	1.800	1.800	1.272	0.900
RECTANGULAR PULSE D=X/Y 	0.9/D	0.9, D	$0.9/D^{1/2}$	0.9 D
TRIANGLE SAWTOOTH 	3.600	1.800	1.038	0.900

5. Optional accessories

The optional accessories are listed on the table 5-1.

Since the VR-3510 and 3525 contain the temperature adaptor, use the sensor probes 1 to 3.

For the VR-3550, use the temperature probes and adaptors 4 to 6.

Other optional accessories are usable to VR-3510, VR-3525 and VR-3550.

Table 5-1

No.	Item	Model	Measuring range
1	Temperature probe (protector tube type)	4261	−20 to 700℃ (Thermocouple K, CA)
2	Temperature probe (Protector tube type)	4262	−20 to 200℃ (Thermocouple k, CA)
3	Temperature probe (Surface sensor type)	4263	−20 to 600℃ (Thermocouple K, CA)
4	Temperature probe and adaptor (Protector tube type)	DV-005	−20 to 700℃ (Thermocouple K, CA)
5	Temperature probe and adaptor (Protector tube type)	DV-006	−20 to 200℃ (Thermocouple K, CA)
6	Surface temperature probe and adaptor (Tube type)	DV-007	−20 to 600℃ (Thermocouple K, CA)
7	Current clamp and adaptor	DV-008	200A DC 150A AC
8	Static capacitance adaptor	DV-009	2000pF, 20nF 200nF, 2000nF 20μF, 200μF (6 ranges)
9	Current clamp	4267	200A DC 150A AC
10	Soft case	6703	

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For Battleship Game

heads Black = Com.
Red = Human etc.

Fire - if pressed down
Fire - if pressed down
Then put Human Ship at Sea.

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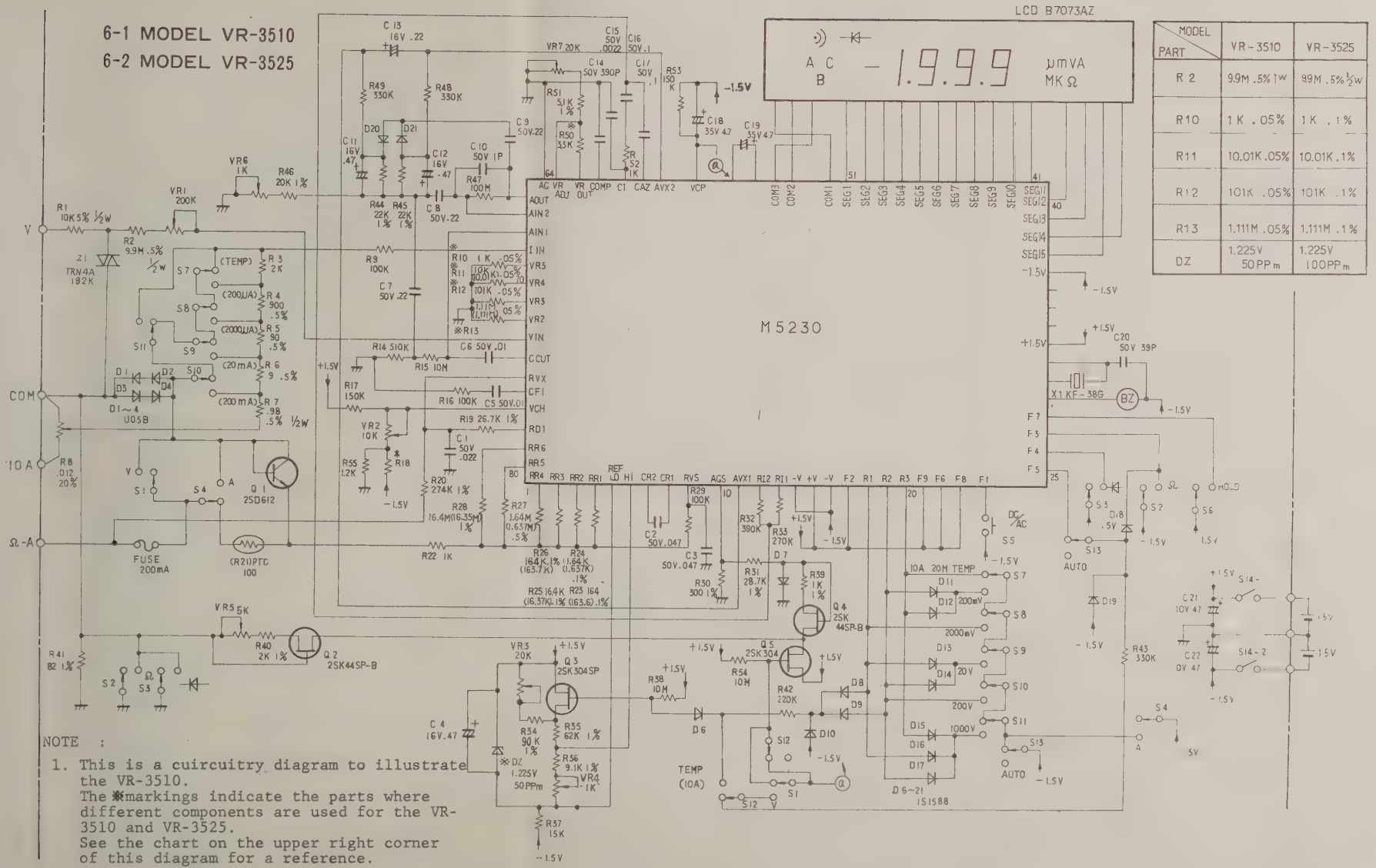
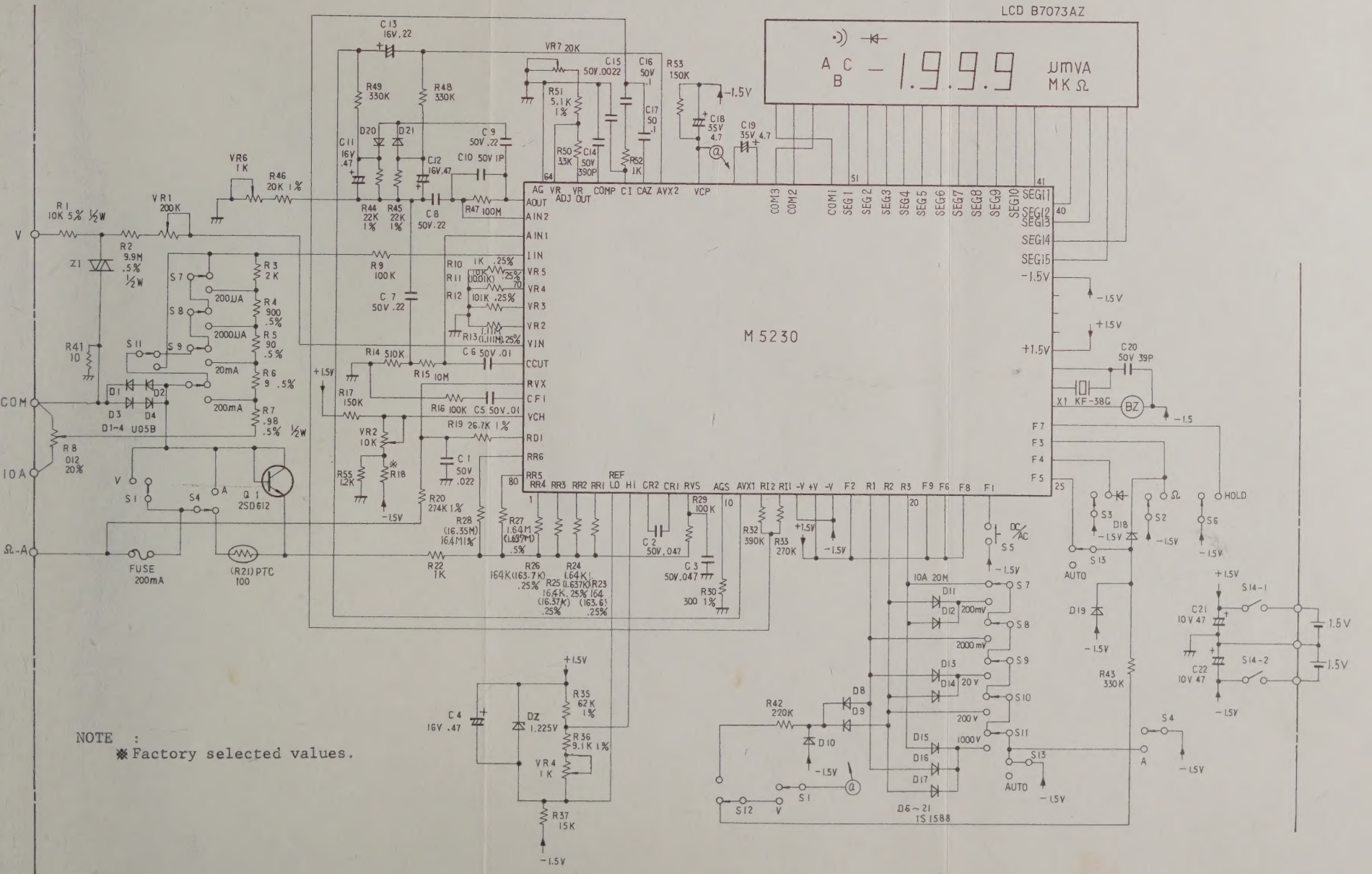
[redacted]-

6. Schematic Diagrams

6-1 MODEL VR-3510
6-2 MODEL VR-3525



PART \ MODEL	VR-3510	VR-3525
R 2	9.9M .5% 1W	9.9M .5% ½W
R10	1 K .05%	1 K .1%
R11	10.01K .05%	10.01K .1%
R12	101K .05%	101K .1%
R13	1.111M .05%	1.111M .1%
DZ	1.225V 50PPm	1.225V 100PPm


LCD B7073AZ
M5230
NOTE :
※Factory selected values.

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